KAWASAKI SYNTHESIZER™

Instruction Manual

SIGHT & SOUND
Music Software, Inc.

KAWASAKI SYNTHESIZER™

The Performer
The Composer

By Ryo Kawasaki

A two disk program
for Commodore 64 with disk drive

CPC-KS-M 1 of 4
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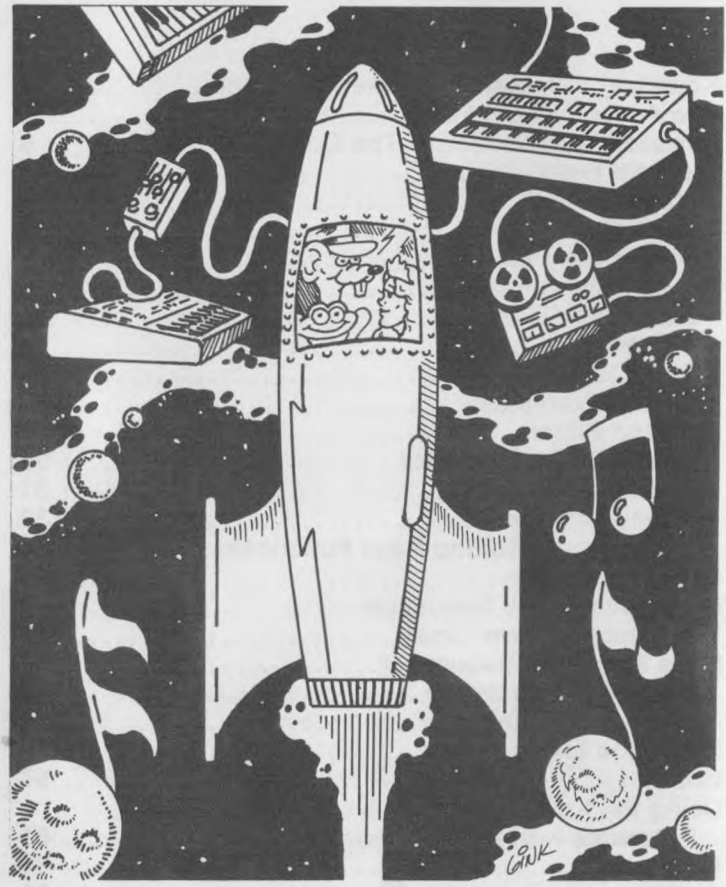
KAWASAKI SYNTHESIZER
THE PERFORMER



Prepare yourself! You are about to embark on an adventure into a new dimension of sound, color and computer music magic. You are entering a brave, new world. Here, musical facts and figures give way to boundless, creative imagination just waiting to cut loose.

Note: Should you experience difficulty in loading either The Performer or The Composer programs, simply turn off the power on the computer and leave it off for at least 5 seconds. Then power back up and load the program.

TO LOAD

1) Insert The Performer disk into drive.
2) Type **LOAD "*",8,1**
3) Press **Return**
4) Make sure the volume is up on your TV or monitor.

Loading takes a few minutes. Notice the colorful and entertaining displays during the load.

When you reach the first outpost in this new frontier, you have a few options listed on the screen. These commands offer various modes and effects for playing the music keys illustrated on the screen. You'll return here; but, for now, press the H key.

MAIN MENU

You have just entered a most magical place. From this place, you are transported to other domains of sensory delights.

INTRO

Venture forth by pressing the 7 key. In this realm, are the overseers of this new world. They are here to accompany you through this journey.

May I introduce:

Chuga — a most righteous, rhythmical rodent;
Stinzy — an amiable space amphibian;
Elena — the vivacious, vogue, imperial princess from Venus.

When you see the keyboard again, press the H key.

DEMO

Press the 3 key to transgress the stratosphere and enter upon Kawasaki's Space Dance Theater. Here the Kicker Brothers perform for you. They are, of course the intergalactically acclaimed dancers from Thailand, known for their skill in kick-boxing and their frequent visits to Bali.

During their performance, little notes take wing. You may alter their speed by pressing the Commodore key ( ). This cosmic presentation lasts about two and one-half Earth minutes. Take note of the instructions at the bottom of the screen.

SPECIAL KEYBOARD EFFECTS

When you see the keyboard again, press the music keys on the keyboard (the upper two rows of keys). You have many powers under your control.

1. Press the space bar while holding a note — you get a glissando.
2. Press the shift key while holding a note — instant vibrato.
3. Press the control key while holding a note — a slide.

The above are but a few of the forces in your dominion. Try this:

1. Press the H key.
2. Press the 4 key.
3. Press the S key to select the mystery sound.
4. Press the Z key for space travel.
5. Press two or three music keys. Wait. Listen. Slowly move to other keys.

This effect relaxes and replenishes you for further exploration.

Press the Return key and select a musical instrument (trumpet etc.) before moving on.

PLAY SEQUENCES

Press the H key. This is the **Main Menu.** In this domain, you may directly call upon the musical forces of the master, Ryo Kawasaki. With the program disk still in the drive, press any of the keys indicated on the screen to bring forth sound. Press F7 to stop the music and press the space bar twice to enter the Main Menu.

EXPLORE ON YOUR OWN

You are now free to explore on your own. All functions are documented on the screen, and you are free to use them as you wish.

Here are a few clues to help you uncover more of the powers within this program.

1. From the Main Menu,press the 5 key. Here you'll find the F7 key documented on the screen. This key is used to select a true polyphonic mode: you may play up to three notes on the keyboard at the same time. This screen also explains keyboard range (octave) selections.

2. When in the Main Menu, press the 6 key. This screen explains how you can change the waveform of the currently selected sound. Combined with the octave selections, this can create over 500 different sounds. By selecting an instrument and changing its waveform and octave, you can create completely new sounds and instruments.

3. Return to the keyboard screen. You can hear a preprogrammed rhythm and bass line by pressing the B key. Play along with the music. This is your chance to play in a band. If you're not sure what to play, try the following note suggestions.

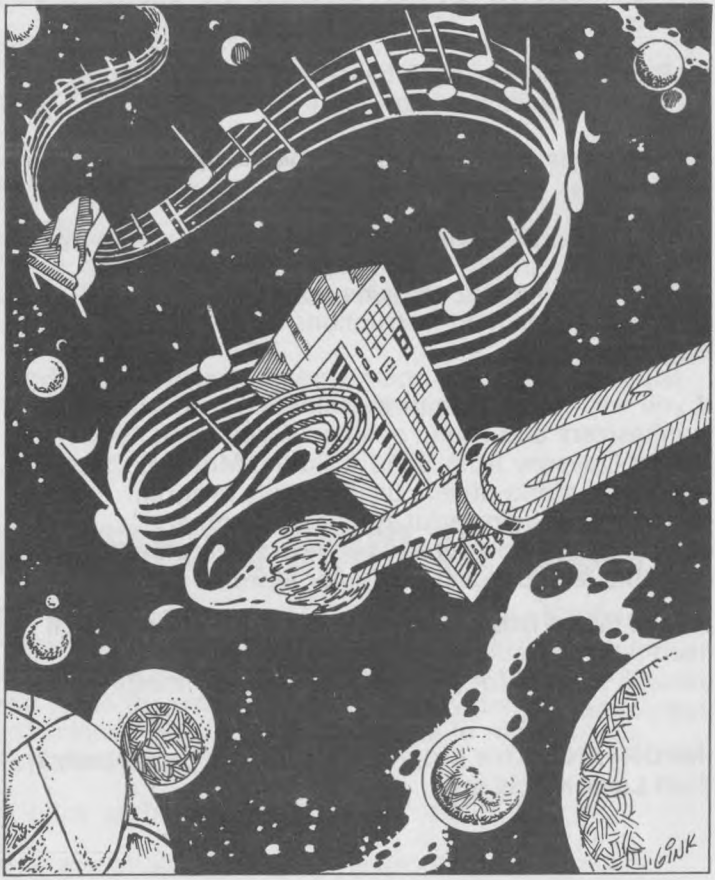
A. Try to mimmick the bass line by playing the same note pattern.

B. Improvise - Play as above, adding variations to the note pattern.

C. Use only the white keys (Q, W, E, R, etc.) and try to play short patterns that sound nice with the bass line. Don't worry about all the sounds you make, just stay "in the groove" — keep the rhythm.

This program is designed to provide hours of fun, exploration and eductaion. Its usefulness is as unlimited as your imagination. Be creative, stay loose, and enjoy.

KAWASAKI SYNTHESIZER THE COMPOSER



This program is a set of fine sable paint brushes - musical paint brushes. A complete set, having many shapes, sizes, and textures. It is also a canvas you can use to bring your musical impressions to life.

This creative tool allows you to realize your musical ideas, whether they are influenced by the classics or inspired by the cosmos.

PROGRAM FUNCTIONS

With this program, you can:

1. Play music using a vast assortment of sounds and effects.

2. Record and playback bass-lines and play along with them. (Examples are provided.)

3. Record and playback multi-voice compositions (up to 3 voices). (Examples are provided.)

4. Create sounds and effects and store them on disk.

NOTE: This manual contains activities, demonstrations, and instructions for program operation.

If you wish to explore further the technical aspects of synthesizers and sound synthesis, you need 3001 Sound Odyssey from Sight & Sound Music Software, Inc. It is a menu-driven, user friendly program consisting of a powerful synthesizer and a comprehensive on-screen synthesizer tutorial. It's available at your local computer store.

NOTE: When using certain program functions, you'll need a formatted disk to store data. Consult the owner's manual for your disk drive for formatting instructions.

IMPORTANT: This program only functions properly if **Shift Lock** Key is **up.**

GETTING STARTED

Helpful hint: In case you haven't tried The Performer program as yet, you might consider doing so. It's a good starting place to help you become familiar with the entire Kawasaki package.

TO LOAD

1) Insert The Composer disk into drive.

2) Type **LOAD "*",8,1**

3) Press **Return**

4) Make sure the volume is up on your TV or monitor.

Loading takes a few minutes. Notice the colorful and entertaining displays during the load.

NOTE: In the future, if you wish the program to load faster, change the Load statement in step 2 above to: **LOAD "B",8,1**. This bypasses the introduction screens.

Loading is complete when a piano keyboard and a list of commands appear on the screen.

SOMETHING GOOD TO KNOW

The screen you are looking at is called the **Keyboard Page.** This program contains other pages or screens for different modes. As you learn about the program, if you press the wrong key accidentally and end up in an unfamiliar mode, follow these steps to return to the Keyboard Page:

1) Look at the title of the screen.

2) If it is other than the Keyboard Page or Sound Editing Page, press the **E** key, then the **Return** key.

3) If you're in the Sound Editing Page, press the space bar to go to the Keyboard Page.

THE KEYBOARD PAGE

Look at the keyboard on the screen. Each key is shown with a note name (letters - C, D, E, F, G, A & B). Also, each key has one or more characters (see the small arrows) that indicate a key on the computer keyboard. The top two rows of computer keys are called **music keys.** They are played like a piano keyboard. The top row represents the black keys and the second row represents the white keys.

NOTE: Be sure to ask your computer dealer about "The Incredible Musical Keyboard" available from Sight & Sound Music Software Inc. This keyboard fits right over your computer console and turns it into a real piano-like instrument.

Try playing the music keys. Watch the screen and you'll see the computer light up each key as you play it.

NOTE: the DEL key plays the high B note.

KEYBOARD PAGE FUNCTIONS

SEQUENCER

Press the B key to start the automatic sequencer (listed on the top-left of the screen). A pre-programmed pattern of notes — a sequence — starts to play. You may play the music keys along with the sequence. Later, you'll be using this feature to "jam" with bass-line sequences programmed yourself. The . (period) key is used to turn off the sequencer.

Note: The sequencer (**B** key) only works when Split and Vibrato are off.

DEMO

Press the C key to hear a Prelude by J.S. Bach. This is for your enjoyment and to demonstrate the multivoice sequencer. The screen display shows you the names of the notes as they play. This composition uses 2 of the 3 possible voices. Press the F7 key to stop the music at any time.

HOLD

The next function listed on the screen is the **Hold** function. Press the X key to turn on the Hold function. Press a music key and let go. The note sustains for some time before it fades away. Other uses of this function are described in more detail later. Turn off the Hold function by pressing the / (slash) key.

NOTE: In some cases, a note may linger endlessly. Use the / (slash) key to turn the note off.

KEYBOARD CONTROLS

Pictured below are the functions displayed on the bottom half of the Keyboard Page.

F1: OCT-HI
F3: OCT-MID
F5: OCT-LO
F7: ULTRA-LO

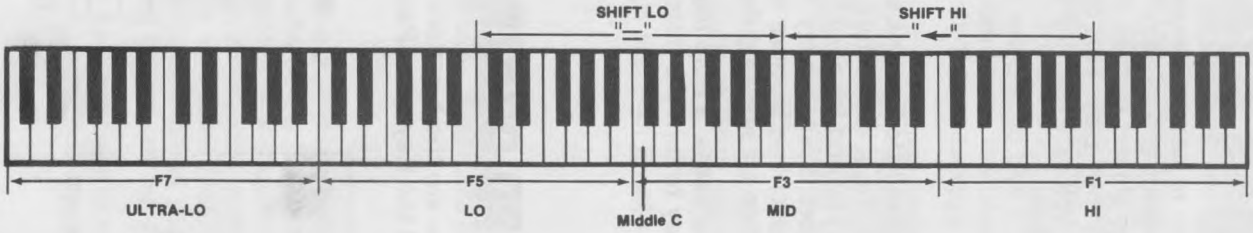
F2: TRIANGLE
F4: SAWTOOTH
F6: PULSE
F8: NOISE
F : WAH-WAH 0: OFF

SPACE: SOUND EDITING
—V—: SOUND LOADING
CRSR - V MONOPHONIC
CRSR —> POLYPHONIC

—←—: K-B SHIFT HI
— = — : K-B SHIFT LO
—M— : SPLIT ON
—N— : SPLIT OFF

[:] : VIBRATO [:] : OFF

The functions highlighted in the boxes pictured on pg. 13 are used to control the pitch range of the keyboard. Press any of these keys and notice the effect when you play the music keys. The currently selected range is indicated by * or +. Try each of the ranges and listen to the difference. For your information, the diagram below shows how the ranges correspond to an 8 octave piano keyboard.



The arrows show the notes you can play when the indicated range is selected.

SPLIT

When the **Split** is on, (type M), there is a gap between lower sounds and higher sounds. Play each note in the second row of keys (or white keys on the Incredible Music Keyboard) in order from left to right. Listen to the large gap in pitch between the middle B and C notes (**U** and **I** keys).

The Split range gives you a wider range of pitches from one end of the keyboard to the other.

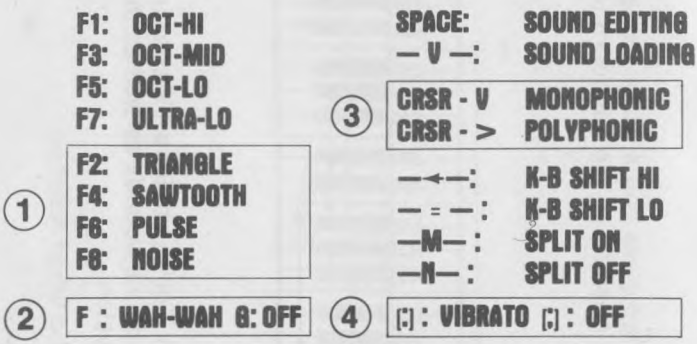
◄► Split On

NOTE: It is a good idea to turn Split off (**N** key) when going on to other functions. For example, Vibrato, Polyphonic and the Sequencer (B key) only work with Split off.

NOTE: When using the Ultra-Low range, some notes may not reproduce through your audio system. For example, a TV speaker may not reproduce sounds as well as those of a stereo system.

Select Oct-Mid when finished.

SOUND CONTROLS



The functions listed in the boxes above change the sound texture of the music keys.

Box 1. Triangle, Sawtooth, Pulse, and Noise are waveforms produced by the sound generating chip in the computer. To select a waveform, press the indicated key (even-numbered function keys are activated using the shift key).

Play some music keys after choosing each of the waveforms listed below. Notice the difference in the sound.

F2 (Triangle) — for a mellow smooth sound (flute).

F4 (Sawtooth) — for a coarser, raspier sound (strings or reeds).

F6 (Pulse) — for a hollow, mellow sound (clarinet).

F8 (Noise) — for a scratchy, noise sound (used to produce gunshots, wind, explosions, etc.).

Also, try each waveform in different octaves.

Set waveform to Sawtooth when finished.

Box 2. Press the **F** key to activate Wah-Wah. Play the music keys. Wah-Wah is a popular effect heard on many of today's pop records.

When Wah-Wah is on, the frog (Stinzy) changes from green to red. Press the **G** key to turn Wah-Wah off and change Stinzy back to green.

Box 3. The cursor controls are used to select **Monophonic** or **Polyphonic.** They're located on the right side of the bottom row of keys. Press the **cursor right** key to select the Polyphonic mode. Play the music keys and notice that up to 3 notes can be heard at one time. Press the **cursor down** key to return to the Monophonic mode — where notes are heard individually.

NOTE: Try using the Hold function in the Polyphonic mode. When finished, switch to Monophonic and turn Hold off.

Box 4. The **:** (colon) key activates **Vibrato**. Vibrato is a slight wavering of the pitch. Violin players create this effect by rocking their fingers on the string while playing.

Turn Vibrato on. Play the music keys. Try different octaves.

NOTE: Stinzy the frog is purple while this effect is on. Also, Wah-Wah and Vibrato cannot be activated together — Stinzy gets confused.

Note: Vibrato must be off to operate the sequencer (B key).

Press the **;** (semi-colon) key to turn Vibrato off.

THE V KEY

The **V** key accesses the Sound Loading Mode. The Sound Loading Mode is discussed under Sound Storage later in this manual.

SPACE BAR

Press the **Space Bar** to switch to the Sound Editing Page and back again.

Now that you are familiar with the Keyboard Page functions, you may experiment further or move on to the Sound Editing Page.

SOUND EDITING PAGE

From this page, you can perform a number of important program functions:

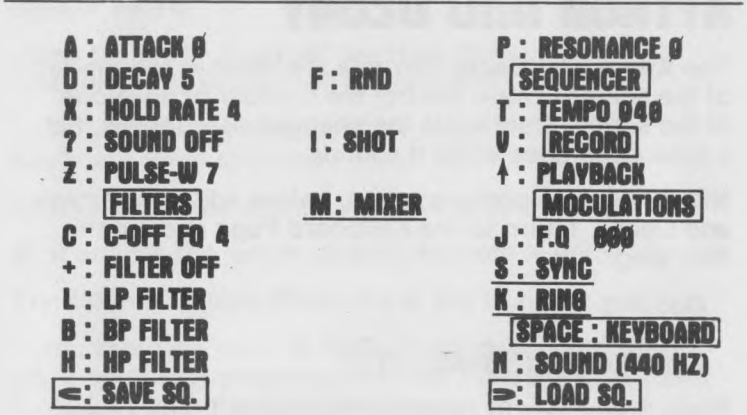
1) Edit individual sounds.

2) Save and load sound settings on disk.

3) Record, edit, and play back sequences (compositions).

4) Save and load sequences on disk.

The following diagram shows the Sound Editing Page functions and how they're used. (See notes below).



NOTES:

A) For functions shown with numbers in the illustration above, values are increased by pressing the indicated key. Values are decreased by holding down the shift key along with the indicated key.

B)
Functions shown in the above illustration not followed by numbers are turned on by pressing the indicated key. The underlined functions are turned off by pressing the indicated key along with the shift key. Instructions for turning off other functions are given later.

While in the Sound Editing Page, you can press the **N** key at any time to hear the current sound settings. This is convenient for sampling sounds as you make changes.

ATTACK AND DECAY

The **Attack** and **Decay** controls are listed in the top-left of the screen. These control the contour or envelope of the sound. Contour is the changes of loudness that a tone undergoes while it sounds.

NOTE: For this demonstration, before adjusting Attack and Decay, return to the Keyboard Page and set the following:

Oct-Mid
Triangle
Wah-Wah and Vibrato Off.

Press Space Bar to return to the Sound Editing Page.

The current Attack and Decay settings (which should be Ø and 5 respectively) produce a contour similar to that of a piano — an instantaneous attack and a gradual decay (fading away). Press N to hear the current envelope setting.

Attack and Decay are time values. If you set the Attack to 3 (by pressing the **A** key 3 times), the Attack time increases. Press the **N** key and you'll notice the volume rises more gradually, simulating a flute.

The time it takes for a note to fade or decay is controlled in a similar way using the Decay control. Change these settings as you please. (Refer to Sound Editing diagram if you forgot how.) Listen to the sounds you create and see if they remind you of any familiar musical instruments.

Also, feel free to change Keyboard Page settings to change your sounds. You may want to jot down the settings you like best.

NOTE: Try playing the keyboard using Wah-Wah with various Attack and Decay settings.

HOLD RATE

Press the **X** key to adjust the **Hold Rate** value. Changing this value does the following:

1) It turns on the Hold function. (See Hold in Keyboard Page section.)

2) It changes the volume at which a note is held.

3) It adjusts the length of time the note is held.

Try different values. Press the **N** key to hear the effect.

If you sample a note (**N** Key) in this page, with Hold on, it continues sounding. Use the / (slash) key to turn it off, just as in the Keyboard Page.

SHOT

The **Shot** function automatically sets the contour of a sound to have an instant attack and a short decay. It is useful in creating short percussive sounds such as gunshots or drums. Try it using these steps.

1) Turn on Noise waveform in Keyboard Page.

2) Turn on Shot in Sound Editing Page by pressing the **!** (exclamation mark) key (shifted 1).

3) Press the **N** key.

4) Try Shot with different waveforms.

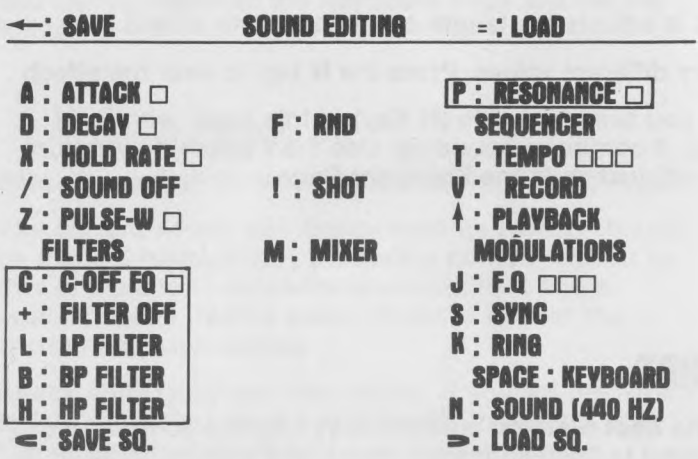
Turn off Shot mode by changing either the Attack or Decay values.

NOTE: If you have Shot on and you play in the Keyboard Page, use the Monophonic setting.

THE FILTER

The **filter** is an extremely important and useful synthesizer component. It controls the tone color or timbre of the sound.

Functions in the boxes below control the filter.



The best way to learn about the filter is to use it. In the following examples, you'll gain a working understanding of how and why a filter is used. If you're interested in technical details, read the optional text in the boxes labelled "Technical Note."

To start, use the following settings:

Keyboard Page:
- Oct-Mid
- Sawtooth
- Monophonic

Turn off:
- Hold
- Wah-Wah
- Vibrato

Sound Editing Page:
- Attack = 4
- Decay = 6

NOTE: Set all other settings the same as when the program was loaded (see diagram on page 19).

LOW PASS FILTER (LP FILTER)

Play a note using the **N** key. Notice how it sounds. Try the following:

1) Press the **L** key. On the screen, the **L** is next to LP FILTER (**Low Pass Filter**). The **L** changes to inverse video (like a photo negative) to indicate the filter is on. Press the **N** key. Notice how the sound is more muffled?

Also, try the above with the Noise Waveform and hear the difference.

Technical Note

The LP or Low Pass Filter blocks higher frequencies and only allows the lower, deeper frequencies to pass through. The point at which the sound is divided into frequencies that are passed or not passed is called the Cutoff Frequency (on the screen it's labelled C-OFF FQ).

2) Try changing the C-OFF FQ (**Cutoff Frequency**) using the **C** key. Use both higher numbers and lower numbers and use the **N** key to sample your sounds. Higher values are brighter and lower values are more muffled.

3) Once the Filter Cutoff Frequency is set, you can change the sound further by using the **Resonance** Control. Press the **P** key to change the Resonance value to 7. This adds more depth to the sound.

Technical Note

Resonance controls how strongly the filter affects the frequencies of the sound close to the Cutoff Frequency. Raising the resonance generally produces more intense filtering effects, although often the effect is very subtle.

BAND PASS FILTER (BP FILTER)

Press the B key to turn on the **Band Pass Filter**. This also turns off the Low Pass Filter.

Technical Note

This filter only passes a certain band of frequencies of the sound. It can selectively pass a band of low frequencies or high frequencies, or a band somewhere in-between. However, only one relatively small section of frequencies can be passed. The Cutoff Frequency Value "tunes" the Band Pass Filter to the section of frequencies you wish to pass.

Experiment with the Cutoff Frequency. Do your settings remind you of any musical instruments or familiar sounds?

HIGH PASS FILTER (HP FILTER)

1) Press the H key to turn it on. This filter passes only higher frequencies.

2) Follow steps 2 and 3 under Low Pass Filter.

FILTER OFF

Press the + key to turn the filter off. The waveform you selected in the Keyboard Page now passes through unchanged.

PULSE WIDTH

The **Pulse Width** control can be used to alter the sound when the Pulse Waveform is on. On the Sound Editing Page, it's labelled PULSE-W, just above the Filter section.

Try the following:

1) Turn on Pulse Waveform in the Keyboard Page.

2) Go to the Sound Editing Page and press the **N** key.

3) Change the Pulse Width value using the **Z** key (shifted to decrease value). Try different values, and press the **N** key to hear them.

Notice the differences in the sound? Pulse Width alters the sound by changing the shape of the pulse waveform.

SOME SOUNDS TO TRY

Below is a chart of some settings you can try. Feel free to change them or experiment on your own.

INSTRUMENT	OCTAVE	WAVEFORM	ATTACK	DECAY	PULSE-WIDTH	CUTOFF FREQ.	FILTER	RESON-ANCE
Woodwind	MID	Pulse	4	5	2	4	BP	5
**Harpsichord	MID	Sawtooth	0	4	—	4	HP	6
**Banjo	MID	Sawtooth	0	4	—	2	BP	0
*Violin	HI or MID	Sawtooth	4	5	—	2	HP	0
***Funk Bass	LO	Pulse	0	5	4	5	LP	7
Flute	MID or HI	Triangle	5	5	—	2	BP	0
Low Woodwind	LO	Pulse	4	5	7	1	BP	7
Oriental Strings	MID	Sawtooth	0	4	—	3-5	HP	6

* Turn on Vibrato (Keyboard Page) for these sounds.
Vibrato works best in the high octave for the Violin sound.
** Turn on Polyphonic mode for these sounds (Keyboard Page).
*** Turn on Wah-Wah (Keyboard Page).

NOTE: Due to variations in the design of the Commodore 64 synthesizer curcuit, some computers may sound different than others. Generally, a slight adjustment of the Filter Cutoff Frequency values (if the filter is used) can compensate for this difference.

SOUND EFFECTS

SPACE PIGEON EFFECT

1) While in the Keyboard Page, press the **?** (question mark) key.

2) Press the **:** (colon) key.

3) Make sure Split is off.

Play the music keys.

The unique sound of pigeons from Venus, right?

When you are ready to send them home, press the **K** key, then the **;** (semicolon) key.

DRONE SOUND

In some folk music, such as East Indian and Scottish music, a melody is played over a sustained "drone" sound. Try the following:

1) Turn on Hold.

2) Turn on Polyphonic.

3) Press a note to produce the drone sound.

4) Switch to Monophonic and play any melody or random combination of music keys. You can select a different Octave and Waveform (for the melody only).

5) Press / (slash) key to turn off the drone sound.

Note: Ryo has composed a very nice drone piece for you called "Raga". See page 36 under Loading Song File Type #1 to hear his composition.

RANDOM SOUNDS

Press the **F** key in the Sound Editing Page. This turns on a continually changing random pattern of pitches. Any sound settings can be used with Random Sounds to create a vast array of effects. You can use the Tempo control (**T** or shift and **T**) to further alter this effect.

To make adjustments to your sound settings turn Random off useing the / (slash) key.

SYNC/RING MODULATION

Under the word Modulations, on the Sound Editing Page, you'll find the letters J, S and K listed. These functions produce interesting effects.For instance:

SYNC

1) In the Keyboard Page:
   A) Select Oct-Mid
   B) Select Triangle
   C) Turn on Hold

2) In the Sound Editing Page, press the **S** key to turn on Sync.

3) Press the **N** key to start a tone.

4) While the tone plays, press the **J** key and hold it. If the tone stops, press the **N** key again. The number on the screen changes as the sound sweeps up.

5) At any point, you can sweep back down by pressing and holding the **J** key while the **shift** key is held down.

6) Try alternating between upward and downward sweeps.

Note: The **J** key sets the Modulation Frequency (F.Q.).

RING

1) Press the / (slash) key and press the **K** key to turn on Ring.

2) Press the **X** key to turn on Hold, then press the **N** key.

3) Press and hold the **J** key and hear the tone sweep up.

4) Experiment with this effect as you did with Sync.

The **J** key changes the Modulation Frequency. As you've seen, it alters the effect produced by Ring and Sync.

Ring and Sync can be used when playing the keyboard.

These effects completely change the tuning of the music keys. They are useful for sound effects but less so for playing melodies.

When moving on, don't forget to turn off **RING** and **HOLD**.

SOUND EFFECT EXAMPLES

Here are some effects you can try.

SOUND	WAVEFORM	OCTAVE	ATTACK	DECAY	FILTER	CUTOFF FQ.	NOTES
Wind	Noise	Mid or Experiment	6	6	BP	6	Try varying all settings. Try Wah-Wah. (Keyboard Pg)
Surf	Noise	Mid or Experiment	6	6	HP	6	Try varying all settings. Try Wah-Wah. (Keyboard Pg)
Gunshot	Noise	Mid or Experiment	0	2	Experiment	Experiment	Try Shot function.
Explosion	Noise	Mid or Experiment	2	6	LP	7	Try Wah-Wah. (Keyboard Pg)
Bells	Triangle Sawtooth Pulse	Experiment	1	3	Experiment	Experiment	*Turn on Ring Modulation. Try Wah-Wah. Vary other settings.
Random Tones	Any	Experiment		Press "F" key in Sound Editing page. Vary other settings. Press "/" to stop.			
Lazer Blast	Noise	Experiment	2	4	HP	7	Try Wah-Wah. Vary other settings.
Space	Pulse	Low or Experiment	7	7	Experiment	Experiment	Try Wah-Wah. *Try Ring Modulation or Sync.

*When using Ring Modulation and Sync, the effect can be varied by changing the **Modulation Frequency** (the **J** key in Sound Editing Page).

NOTE: All effects except Random Notes can be sampled using the **N** key in the Sound Editing Page. Or you can use the Keyboard in the Keyboard Page.

THE SOUND MIXER

Press the **M** key in the Sound Editing Page to enter the **Mixer Mode**. The Mixer is used to select a different waveform for each of the 3 voices, producing different instrument combinations. Try selecting different waveforms for the two voices in the sequencer demo — Prelude by J.S. Bach. **NOTE:** If you've loaded any sequences from disk, the J.S. Bach demo is erased. In this case, select waveforms for the new sequence following steps 1-4. Then use the playback mode in the Sound Editing page to hear the sequence.

To select different waveforms:

1) After pressing the **M** key, select Voice 1. (Press the **1** key, then the **Return** key.)

2) Select any waveform by pressing the indicated key, then the **Return** key.

3) Repeat the above procedure for Voice 2 using a different waveform.

4) Press the **E** key, then the **Return** key, then the space bar.

5) Press the **C** key to hear Prelude.

For a completely different sound, use Noise in one of the voices (if you haven't already). Remember, shifted **M** in the Sound Editing Page, turns mixer off.

SOUND STORAGE

You can save your sound settings in the computer's memory and, you can store them on a disk. Four sound set-ups or "instruments" can be memorized in the computer. Four sound set-ups make up one sound file on a disk.

TO SAVE A SOUND IN MEMORY:

1) When you are satisfied with your settings for a sound, and you are in the Sound Editing page, press the left arrow (←) key.

2) Store the sound in one of the four instrument memories by pressing a number key (**1-4**) and then the **Return** key.

3) Your setting is now in the computer's memory.

TO ACTIVATE A SOUND FROM MEMORY:

1) Enter loading mode by pressing the **V** key while in the keyboard page, or the = key while using the Sound Editing Page.

2) Press a number key (1-4) and then the return key.

3) Play the keyboard to hear the sound you've selected.

NOTE: The new sound you've loaded from memory does not change the Sound Editing page display numbers. Only the filter choices are indicated.

SOUND FILES

Use the following procedure to save or load sound files on disk. (You should use a formatted work disk for your data, not the program disk.)

1) Enter either the Sound Loading or Saving mode as described earlier.

2) Press the **5** and **Return**.

3) Enter a name for your sound file. File names can be up to nine characters long. Press **Return**. Your file is now saved or loaded.

SOUND LIBRARIES

Experiment with setting up sounds. As you practice, you'll discorver that creating sounds quickly becomes second nature to you. Create your own sound library on a disk. Get together with your friends to see who can create the most realistic or interesting sounds.

NOTE: Certain settings are not memorized and must be reset by hand once the sound is loaded. They are:

Octave
Ring Modulation
Sync
RND
Shot
Wah-Wah
Vibrato

You may want to jot down which of these you've used.

OTHER FUNCTIONS ON THE SOUND EDITING PAGE

Listed below are more Sound Editing Page functions and brief descriptions of their use.

Tempo: Sets the playback speed of sequences.

> **NOTE:** the Range of Tempo is 0-255. The higher the number the slower the sequence plays.

The following functions are described in detail later.

Record: Used for entering notes into the sequence memory.

Playback: Plays sequences in memory

Save SQ: Stores sequences on disk

Load SQ: Loads sequences from disk

USING SEQUENCES

LOADING SEQUENCES FROM DISK

Your Kawasaki Synthesizer program disk contains a number of exciting and useful demonstration and song files. A complete list of the song files is included on page 56.

There are four types of song files:

1) Song arrangements for your enjoyment.

2) Bass lines with which you can play along.

3) Demonstrations of 3-part harmony.

4) Song arrangements which are loaded in four parts. These are both for enjoyment and for demonstration of the memory bank system.

LOADING SONG FILE TYPE #1

1) Choose a song title identified by a number 1 on the Sequence list on page 56.
Most of these files are original compositions by Ryo Kawasaki.

2) While in the Sound Editing screen, press shift and the (**>**) key to enter sequence loading mode.

3) Enter the selected title from Step 1, (without the identifier number), and press **Return**. (If you wish to see the disk directory, enter a **D** instead of a title. Press any key to return from directory.)

4) Press the up-arrow (↑) key to enter playback mode.

5) Select which voices you wish to playback. Since Song Files type #1 are programmed in 3 voices, use option 6 (enter **6**).

6) Press up-arrow (↑) key to play the selection. To stop, exit, change tempo, or repeat, use the commands indicated at the top of the screen.

SONG FILE TYPE #2

The bass lines are loaded in the same manner as file type #1. However, their purpose is to further demonstrate the play-along capability introduced in the first part of this manual.

How to use the bass lines:

1) Choose one of the song files identified by a number 2 on page 56.

2) While in the Sound Editing Page, press the **>** key (with shift) to enter Sequence Loading Mode.

3) Enter name of the selected song file. Press the Return key.

4) When loading is complete, set Tempo. Helpful hint: For the bass pattern, "BASS DEMO" and "BASS 13/8", set Tempo at 80 to start. To increase the speed, remember to lower the Tempo value.

5) Switch to the Keyboard Page.

6) The **B** key starts the bass line; the **.** (period) key stops it.

Once you've started a bass line, play the keyboard along with the bass pattern. Invent note patterns that sound good against the bass line. You can try to mimic the bass line, or slide up and down the keyboard — anything you want! The object is to have fun, and it only requires a little imagination.

NOTE: When playing the music keys along with the bass line sequence, most functions in the Keyboard Page are inoperable.

Playing Hint: For a nice effect, turn Hold on as you're playing the music keys.

SONG FILE TYPE #3

These song files demonstrate 3-part harmony. Refer to file type #1 for loading and playback instructions. To create a fun effect, use Ring Modulation or Sync with these demonstrations.

SONG FILE TYPE #4

These are long playing arrangements.

These long playing arrangements involve the manipulation or **swapping** of memory banks. The **Swap** function is used to arrange memory banks so an arrangement can be played back correctly.

There are two long playing arrangements in the disk:

1) PRELUDE 2-Voices, 4-Parts. Consists of four song files — Prelude 1 through Prelude 4.

2) RYO TO RIO 3-Voices, 3 Parts. Consists of four song files — E1 through E4.

Try loading and playing each arrangement using the steps that follow. The **Swap** function is demonstrated in these steps if you follow the explanation to the right.

NOTE: Be sure to watch the prompts on the screen. They'll help you better understand the following steps.

Choose which arrangement you want to load.
The first step is to Load Part 4.

COMMAND	FUNCTION
Press SPACE	Enter Sound Editing page
Press **>**	To Load Sequence
Enter the name of Songfile 4	(Prelude 4 or E4)
Press ↑	Playback Voice Selection
Enter **1**	Select Voice 1
Press —	Swap —
Press **4**	Into Bank 4
Press **E**	Enter Sound Editing page
Press ↑	Playback Voice Selection
Enter **2**	Select Voice 2
Press —	Swap —
Press **4**	Into Bank 4
Press **E**	Enter Sound Editing page

Loading of Part 4 is complete.
The next step is to Load Part 3.

Press **>**	To Load Sequence
Enter the name of Songfile 3	(Prelude 3 or E3)
Press ↑	Playback Voice Selection
Enter **1**	Select Voice 1
Press —	Swap —
Press **3**	Into Bank 3
Press **E**	Enter Sound Editing page
Press ↑	Playback Voice Selection
Enter **2**	Select Voice 2
Press —	Swap —
Press **3**	Into Bank 3
Press **E**	Enter Sound Editing page

Loading of Part 3 is complete.
The next step is to load Part 2.

Press **>**	To Load Sequence
Enter the name of Songfile 2	(Prelude 2 or E2)
Press ↑	Playback Voice Selection
Enter **1**	Select Voice 1
Press —	Swap —
Press **2**	Into Bank 2
Press **E**	Enter Sound Editing page
Press ↑	Playback Voice Selection
Enter **2**	Select Voice 2
Press —	Swap —
Press **2**	Into Bank 2
Press **E**	Enter Sound Editing page

Part 2 is loaded.
The last step is to load Part 1.

Press **>**	To Load Sequence
Enter the name of Songfile 1	(Prelude 1 or E1) is automatically loaded into Bank 1.

This completes the loading of the arrangement.

To playback the arrangement:

Press ↑	Playback Voice Selection
Enter **7**	For long-playing arrangement
Press **2** (for Prelude) or **3** (for Ryo To Rio)	For 2 or 3 voice arrangement

Press ↑ to start playback.

PROGRAMMING THE SEQUENCER

The Kawasaki Synthesizer Composer has a feature called a **Sequencer**, which allows you to easily enter music into memory and store compositions onto disks. You can enter a variety of 1, 2 or 3 voice musical arrangements.

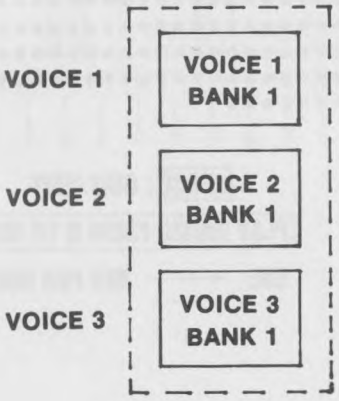
This Sequencer is ideal for entering patterns of notes or inventions you create.

HOW THE SEQUENCER WORKS

The Composer feature arranges the computer's memory into nine banks for storing music. Each bank can store up to 255 characters — either rests or notes.

Depending on the length of your sequence or song, the banks can be arranged in various configurations. The one explained below is the easiest to use. Others require a few more steps and are explained on page 51.

This configuration uses three of the nine banks, one for each voice.



SETTING UP MEMORY FOR ENTERING MUSIC

1) Enter record mode by pressing the **V** key (from the Sound Editing page).

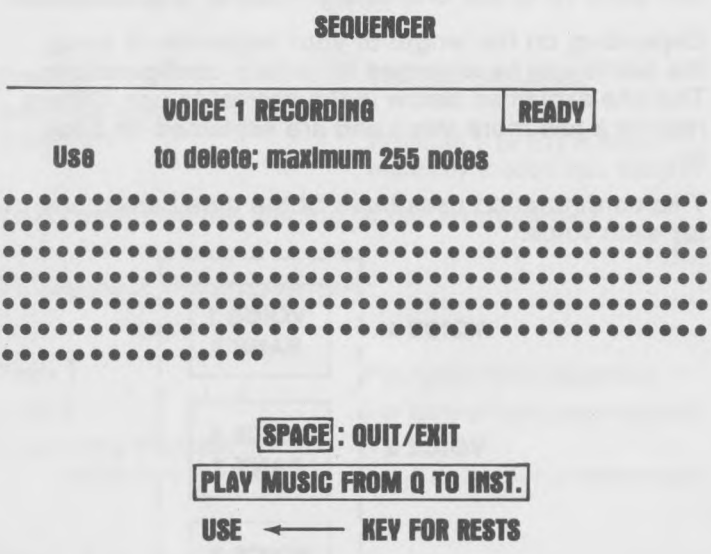
2) Enter Voice 1 recording mode by entering a **1**.

NOTE: On the screen, the X's above the voice numbers indicate the memory for that voice has a sequence stored in it.

(In this case, it's the demo, so disregard the X's for now.)

3) Enter **2** to set the octave to LO.

4) The recording screen appears as illustrated below.



5) Figure A is a song program for you to enter. To do this, follow the instructions for "Entering Music" on page 44. Start with Voice 1 below. Later, return here for voice 2 and 3.

Note: The letters below represent musical key names. As a programming aid, refer to the chart below.

VOICE 1

E●●●●●●●D●●●●●●●C●●●●●●●B$\bar{D}\bar{C}$BAGFEDAGFEDEC
E●●●●●●●D●●●●●●●C●●●D E●F●G●A●B●A●$\bar{C}$●B●A●
B●A●G●F●E

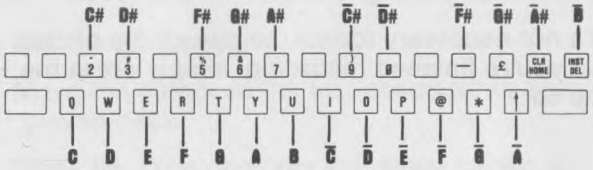
● = REPEATED LETTER

VOICE 2

$\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}\bar{A}$BBAB$\bar{C}$BAGFGAGFEDEFFEFAGB
A$\bar{C}$B$\bar{E}\bar{D}\bar{C}\bar{C}$BBAGF

VOICE 3

$\bar{E}\bar{E}\bar{D}\bar{E}\bar{C}\bar{E}\bar{B}\bar{E}A\bar{E}G\bar{E}F\bar{E}\bar{E}\bar{E}\bar{D}\bar{D}\bar{C}\bar{D}\bar{B}\bar{D}A\bar{D}G\bar{D}F\bar{D}\bar{E}\bar{D}\bar{D}\bar{D}\bar{C}\bar{C}\bar{B}\bar{C}A\bar{C}G\bar{C}$
F$\bar{G}\bar{E}\bar{C}\bar{D}\bar{C}\bar{C}\bar{C}\bar{B}\bar{C}\bar{D}\bar{E}\bar{D}\bar{C}$BAGF#GABAGF#FA$\bar{G}\bar{F}\bar{E}$ $\bar{D}\bar{C}\bar{D}\bar{E}\bar{D}\bar{E}\bar{A}\bar{G}\bar{F}\bar{E}$
$\bar{D}\bar{C}$BA$\bar{B}\bar{C}$BAB



ENTERING MUSIC INTO MEMORY

When entering music, the 255 dots in the middle of the screen are changed to letters and symbols the computer recognizes as music data.

NOTE: In case you'd like to know more about music, inquire about music tutorial programs from Sight & Sound Music Software, Inc.

1) Enter notes using the music keys. If you press any keys other than music or command keys, the last entered note repeats, and is shown as a dot.

2) Notes input using music keys to the right of the I key are in a higher octave. They're displayed on the screen in a different color. They're indicated on page 43 by a - over the letter.

3) **Accidentals** are all entered as **sharps**, and are indicated in reverse video (like a photo negative). For example, C sharp would appear as a reversed C.

4) **Rests** are entered using the left arrow (←) key. They are shown on the screen as inverted T's (⊥⊥).

5) To delete a wrong note, press the less-than < key and enter the correct note. To delete all notes back to the beginning, use the = key to reset.

6) It's not necessary for you to use all the circles. When you're finished recording, simply press the space bar.

MAKE SURE TO CORRECT ALL MISTAKES NOW!

When you have correctly entered the notes in Voice 1, press the space bar to stop recording.

EDITING

If you find a mistake or you want to change something, press the left arrow (←) key to enter the Edit mode. Use the following instructions to edit your sequence:

NOTE: As an aid, procedures are indicated in the top left corner of the screen.

1) Use the cursor control keys to move the blinking cursor over the note you wish to change.

2) Press the **Return** key.

3) Select high or low octave by pressing **H** or **L**.

4) Enter the desired note using the music keys.

5) Repeat this process for every note you wish to change.

6) To exit the Edit mode:

   A) Move the cursor to the last character to be played back.

   B) Press **F5**. (You can only exit when cursor is blinking.)

To play back the notes, press the up-arrow (↑) key.

When you're satisfied with your Voice 1 input, return to page 43. Then repeat the same procedures for Voice 2 using Mid Octave and again for Voice 3.

PUTTING IT ALL TOGETHER

When you're finished entering and editing the notes for three voices, return to the Sound Editing page (**E** key).

1) Press the up-arrow (↑) key to enter the playback mode.

2) Select option 6 for playback.

(3) Press the up-arrow (↑) key to start playback.

SAVING YOUR COMPOSITION ON DISK

The following steps save your composition onto a work disk:

1) Press **<** key from Sound Editing page.

2) Enter file name. (Up to 9 characters.) Press **Return**.

3) Composition saved.

USE WHAT YOU'VE LEARNED TO CREATE YOUR OWN SEQUENCES

And you don't have to be a musician or arranger. Random scales and sweeps up and down the keyboard can produce some very interesting and entertaining music. This type of arrangement can be a lot of fun, especially if you experiment with the many sound settings and effects this program can produce.

The possibilities are endless, and you're in control.

NOTE: When choosing octaves for recording, keep in mind these possibilities:

Voice 1 - Mid or Lo
Voice 2 - Mid or Hi
Voice 3 - Mid only

DURATIONS

Note durations are determined by the number of times a letter is repeated in a sequence. For example, **FFFF** will sound twice as long as **FF**.

The chart below shows you some approximate note durations with a tempo setting of 40, which is the normal setting. At this tempo, one dot on the screen equals one sixteenth note.

16th	●
8th	●●
dotted 8th	●●●
quarter	●●●●

If you change the tempo number to 80, one screen dot equals an eighth note. For your musical example, use tempo 40.

8th	●
quarter	●●
dotted quarter	●●●
half	●●●●

The Decay setting in the Sound Editing page determines whether repeated letters sound like individual notes or one continuous note (see diagram below).

Decay Settings	0 1 2 3 4 INDIVIDUAL	5 6 7 TIED

NOTE: Sequences created with this program can also be used in **Rhythm Rocker**, a program from Sight & Sound Music Software, Inc. Refer to the Rhythm Rocker Instruction Manual for details.

Rhythm Rocker is an exciting product which is actually 2 programs in 1. It is a drum machine, sequencer, and synthesizer. It is also a graphics effects generator.

Ask for a demonstration of Rhythm Rocker at your local computer store.

PROGRAMMING BASS LINES

The bass line sequence is a very useful feature. It allows you to enter note patterns with which you can play along.

When you press the **B** key in the Keyboard Page, you hear a pattern of notes stored in Voice 3, Bank-1. In other words, anything programmed into Bank 1 of Voice 3 can be played back by pressing the **B** key in the Keyboard Page.

Use the following procedure to enter a bass line.

1) Enter Voice 1 Record Mode.

2) Select LO octave.

3) Enter the following note pattern using instructions for Entering Music Into Memory (page 44).

C̄ ↓ ↓ C̄ C̄ ↓ ↓ ↓ A ↓ ↓ A A ↓ ↓ ↓ D ↓ ↓ D D ↓ ↓ ↓ G ↓ ↓ G

G G A B Press Space Bar.

C̄ means enter the higher **C** (the **I** key).

4) Swap to Voice 1/Bank 4 by pressing — (minus) key then the **4** key.

5) Press **4** key again to enter Voice 1/Bank 4.

6) Press the * (asterisk) key to swap into Voice 3.

7) Press the **K** key to enter Keyboard Page.

8) Press **B** to start sequence. Adjust the tempo in the Sound Editing Page if necessary. (You must stop the sequence to change the tempo.)

9) Play the white keys (second row) on the keyboard along with the sequence.

10) The following steps save the bass line to disk.

A) Enter Sound Editing Page.

B) Press **Shift** and **<** keys together.

C) Enter a file name. This bass line is a I-VI-II-V progression. You may want to call it 1-6-2-5.

D) Press **Return** to save bass line.

Below are two more bass patterns to try.

1) Boogie

C ⊥ C E F G

(This is all you have to type. The pattern will repeat during playback automatically.)

Suggested tempo: 57

2) Spanish

A ⊥ ⊥ A A ⊥ E A G ⊥ ⊥ G G ⊥ D G F ⊥ ⊥ F F

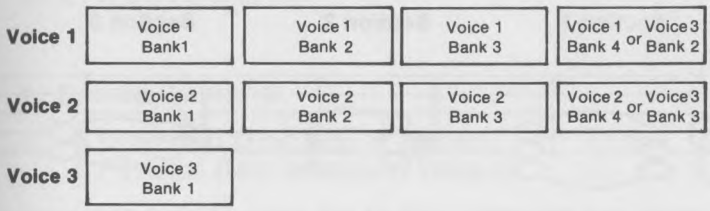
⊥ C F E ⊥ ⊥ E E ⊥ B G ← (G sharp)

Suggested tempo: 72

NOTE: If your bass line or note pattern is in the mid-octave range, you can record directly in Voice 3/Bank-1. LO-octave sequences need to be swapped in because Voice 3 records in Mid-Octave only.

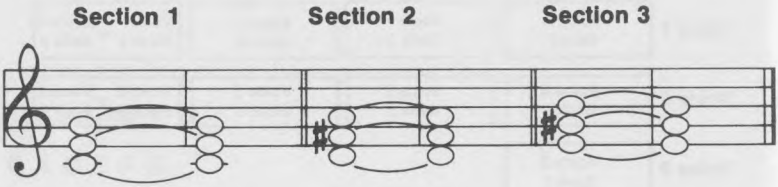
MORE ABOUT USING THE SEQUENCER

By using the additional Memory Banks, you can input sequences or songs longer than 255 characters. The illustration below shows the basic structure of the nine banks.


Voice 1
Voice 1 Bank1
Voice 1 Bank 2
Voice 1 Bank 3
Voice 1 Bank 4 or Voice 3 Bank 2
Voice 2
Voice 2 Bank 1
Voice 2 Bank 2
Voice 2 Bank 3
Voice 2 Bank 4 or Voice 3 Bank 3
Voice 3
Voice 3 Bank 1

Take note, Bank 4 of Voice 1 can also be used as Bank 2 of Voice 3; Bank 4 of Voice 2 can also be used as Bank 3 of Voice 3.

To use the Memory Bank system to your best advantage, it's a good idea to learn how to manipulate the various Banks. The steps in the following short example illustrate this. The example uses a small portion of each bank rather than the full 255 characters.



To prepare for input, you should divide your sequence or song into sections. In the above example, each chord is a section.

NOTE: After recording each Voice, return to the Sound Editing Page.

RECORDING PROCEDURE

Note: Remember, you always record in Bank 1.

a. Record Section 1:

8 C notes (LO octave) in Voice 1.
8 E notes (Mid octave) in Voice 2.
8 G notes in Voice 3.

Save this 3-voice song file to disk. Example File Name — A1 (Don't forget the "1").

b. Record Section 2:

8 D notes (LO octave) in Voice 1.
8 F♯ notes (Mid octave) in Voice 2.

Save this 2-voice song file to disk. Example File Name — A2.

c. Record Section 3:

8 E notes (LO octave) in Voice 1.
8 G♯ notes (Mid octave) in Voice 2.

Save this 2-voice song file to disk. Example File Name — A3.

d. Record Remaining Parts:

8 A notes (Mid octave) in Voice 1.
8 B notes (Mid octave) in Voice 2.

Save this song file to disk. Example File Name — A4.

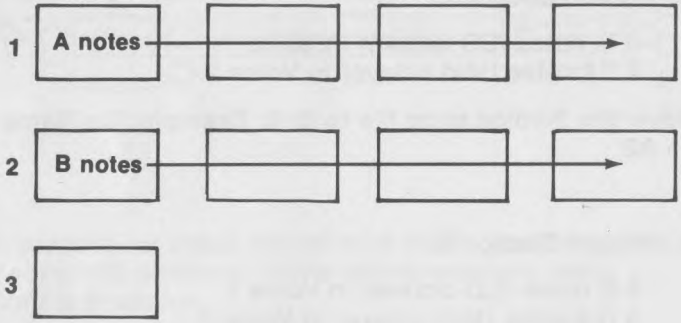
That's it!

PLAYBACK PROCEDURE

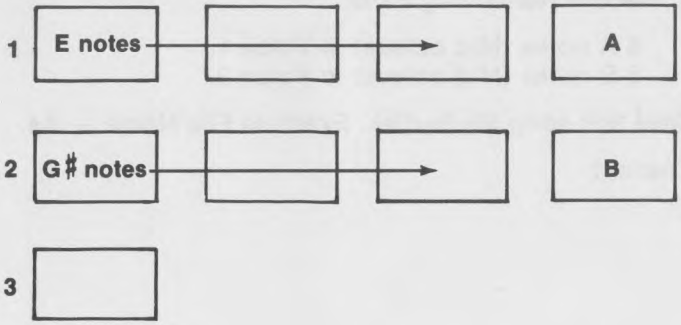
In loading files for playback, you make use of the SWAP function to move files around. For example, once a file is loaded into Bank 1, use the (—) key to relocate the file as shown.

NOTE: Refer to the step-by-step commands you used on page 38.

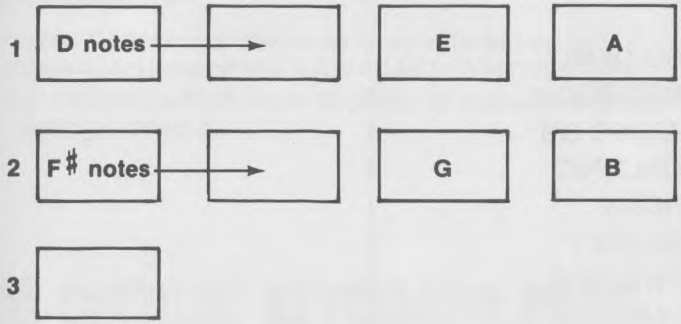
a. Load A4. Swap each voice into Bank 4 of Voice 1 and Voice 2.



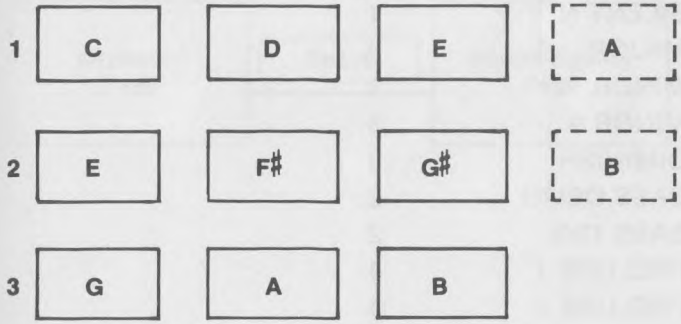
b. Load A3. Swap each voice into Bank 3 of Voice 1 and Voice 2.



c. Load A2. Swap each voice into Bank 2 of Voice 1 and Voice 2.



d. Load A1. No need to swap these voices. The memory banks now look like this.



NOTE: Bank 4 Voices are automatically swapped in Voice 3 positions.

Choose Playback Voice Selection 7 (3 voices), and play it using the ↟ key in the Sound Editing page.

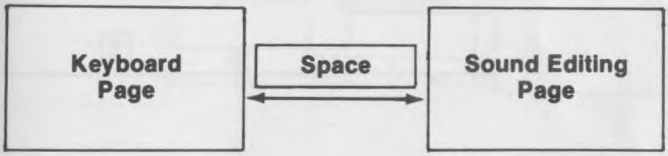
SEQUENCE LIST

SQ DEMO	1
BED ROOM	1
AMINO 6/8	1
CALYPSO	1
HONK	1
BLUES F	1
TWILIGHT	1
12/8	1
JAPUNK	1
1983/8	1
FUGUE	1
RAGA	1
SILENT N	1
MAJOR	3
MINOR	3
MINOR 9	3
DIMINISH	3
BASS DEMO	2
BASS 13/8	2
PRELUDE 1	4
PRELUDE 2	4
PRELUDE 3	4
PRELUDE 4	4
E1	4
E2	4
E3	4
E4	4
FUNK	1

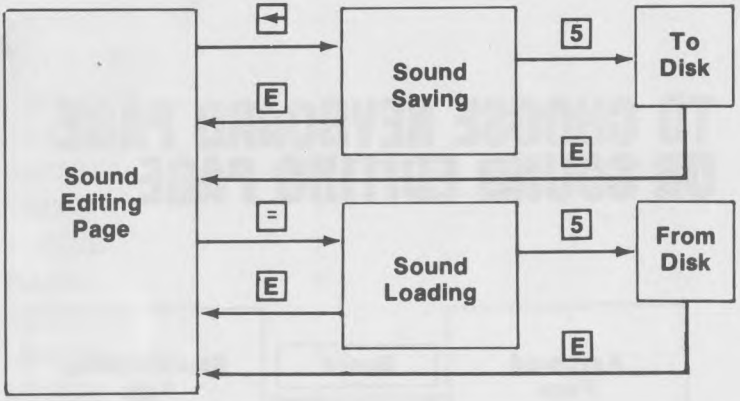
CHARTS

Use the flow charts below as easy references to the various functions of the KAWASAKI SYNTHESIZER. They indicate which keys to press to move in and out of various screens.

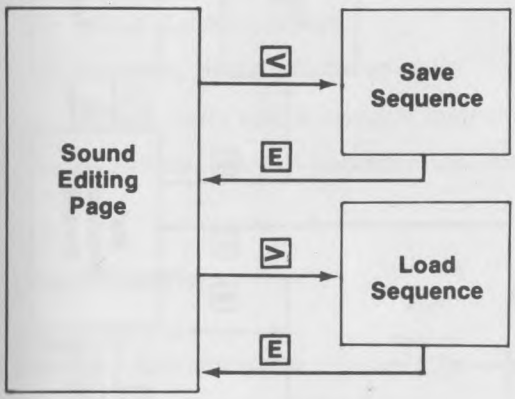
TO CHOOSE KEYBOARD PAGE OR SOUND EDITING PAGE



TO SAVE OR LOAD A SOUND ON DISK



SAVING AND LOADING SEQUENCES ON DISK



TO CREATE AND EDIT SEQUENCES

USING THE SYNTHESIZER WITH SOUND EQUIPMENT

Using the audio output on your Commodore 64, you can play Rhythm Rocker through many types of electronic sound equipment. These include:

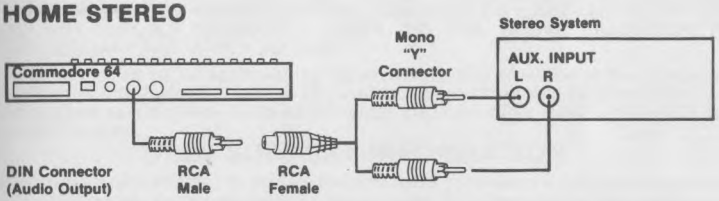
— home stereo systems

— portable, personal stereo units

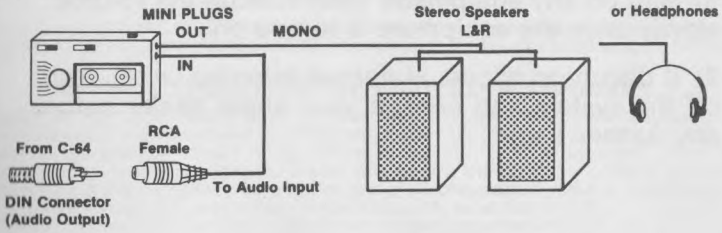
— effects units and a musical instrument amplifier

— or simply, a set of headphones

HOME STEREO

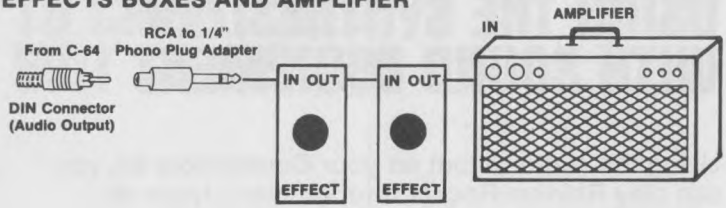


PERSONAL STEREO

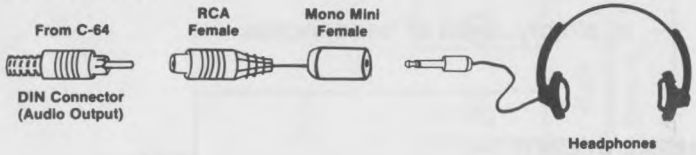


Note: Using this arrangement, you can play along with the radio or tape.

EFFECTS BOXES AND AMPLIFIER



HEADPHONES



Important Note: Since the audio output level of the Commodore 64 is fairly high, use caution when connecting it to sensitive sound equipment. The following precautions should prevent any problems:

1) Turn volume controls all the way down before turning on any equipment. Then turn up the volume slowly once the equipment is turned on.

2) If distortion occurs at normal listening levels, turn off the system and consult your audio dealer before any further use.

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